

What is claimed is:

1 1. An electrical switchgear device comprising:
2 a conductor;
3 a base;
4 a current sensor positioned to detect current in the conductor and attached to the base
5 with a support element;
6 an apparatus mounted to the base to interrupt current through the conductor when a
7 signal from the current sensor indicates a predetermined condition; and
8 a housing positioned on the base and encapsulating the current sensor, the support
9 element, the current interrupting apparatus, and the conductor.

1 2. The device of claim 1 wherein the housing comprises a solid insulating
2 material.

1 3. The device of claim 1 wherein the support element comprises a rigid tube.

1 4. The device of claim 1 wherein the support element is bent at an end coupled
2 to the current sensor.

1 5. The device of claim 4 wherein the bent end of the support element includes a
2 support strip shaped to match a curvature of the current sensor.

1 6. The device of claim 1 wherein the current sensor includes a sensor conductor
2 that produces the signal.

1 7. The device of claim 6 wherein the support element is hollow and the sensor
2 conductor is drawn through the support element to control circuitry.

1 8. The device of claim 6 wherein the sensor conductor and the support element,
2 are hermetically sealed.

1 9. The device of claim 1 wherein the support element is hermetically sealed to
2 the base.

1 10. The device of claim 1 wherein the support element is metallic.

1 11. The device of claim 1 wherein the support element is non-metallic.

1 12. The device of claim 1 wherein the support element is coated with a semi-
2 conductive paint.

1 13. The device of claim 1 wherein the housing encapsulates the current sensor, the
2 support element, the current interrupting apparatus, and the conductor such that there are no
3 dielectric interfaces between the current sensor and the conductor that could lead to a
4 dielectric failure.

1 14. A method of producing an electrical switchgear device, the method
2 comprising:
3 securing a support element to a current sensor;
4 mounting the current sensor relative to a main conductor by securing the support
5 element to a surface of a mold that houses a current interrupter and the conductor;
6 injecting a prepared material into the mold to encapsulate the support element, the
7 current sensor, the conductor, and the current interrupter; and
8 permitting the injected material to solidify to form a housing.

1 15. The method of claim 14 wherein securing the support element to the current
2 sensor includes drawing sensor conductors from the current sensor through a hollow passage
3 of the support element.

1 16. The method of claim 14 wherein securing the support element to the current
2 sensor includes bending a first end of the support element and attaching to the first end a
3 support strip shaped to match a curvature of the current sensor.

1 17. The method of claim 16 wherein securing the support element to the current
2 sensor includes securing the support strip to the current sensor.

1 18. The method of claim 14 wherein securing the support element to the surface
2 of the mold includes connecting a second end of the support element to a post positioned at
3 the surface of the mold.

1 19. The method of claim 18 wherein connecting the second end of the support
2 element to the post includes hermetically sealing the second end to the post.

1 20. The method of claim 18 wherein connecting the second end of the support
2 element to the post includes drawing sensor conductors from the current sensor through a
3 hollow passage of the post.

1 21. The method of claim 14 further comprising removing the mold from the
2 housing and securing the housing to a tank that houses additional components.

1 22. The device of claim 14 wherein the housing encapsulates the current sensor,
2 the support element, the current interrupter, and the conductor such that there are no
3 dielectric interfaces between the current sensor and the conductor that could lead to a
4 dielectric failure.